

FIVE NEW SPECIES OF THE GENUS *MACROCHELES* LATREILLE (ACARINA: MACROCHELIDAE) FROM EASTERN INDIA¹

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(With twenty-nine text-figures)

Five new species of the genus *Macrocheles* Latreille are described from eastern India, namely *assamensis*, *punctosternalis*, *sikkimensis*, *bengalensis* and *crenulatus*.

INTRODUCTION

This paper describes five new species from eastern India. In an earlier paper (1988) I described *Macrocheles kamengensis* based on material collected from Arunachal Pradesh and Meghalaya. Of the five species dealt with in the present paper, two are from Assam (*M. assamensis* and *M. punctosternalis*), the third is from Sikkim (*M. sikkimensis*), the fourth is from West Bengal (*M. bengalensis*) and the remaining one occurs in Assam and West Bengal (*M. crenulatus*). Thus the number of species from the region, new to science under the genus, totals six to date.

The chaetotactic terminology used here is that of Lindquist and Evans (1965) for the dorsal setae and that of Evans (1963) for the leg setae.

Types have been deposited in the Zoological Survey of India, Calcutta. Measurements given in the text are in micrometres.

***Macrocheles assamensis* sp. nov.**

FEMALE (Figs. 1-5): Dorsal shield (Fig. 1), 525 long, 300 wide, finely granular, with faint reticulations confined anteriorly and provided with 28 pairs of simple setae. Verticals, (j1), short, their insertions separated.

Sternal shield (Fig. 2) finely granulated, *l. ang.* conspicuous; *l.a.t.* short, not reaching bases of sternals I; *l.o.p.* short; sternal setae simple.

Metasternal shields oblong, each with a pore at anterior edge and a smooth seta posteriorly. Genital shield broad, truncated posteriorly. genital setae simple. Ventri-anal shield (Fig. 2) 165 long, 120 wide, finely granular, ornamented with faint transverse lines between preanals I and III, preanals simple, adanals and postanal also simple. Metapodal shields represented only by weak sclerites laterad of ventri-anal shield. Stigmata laterally between coxae III-IV, peritremes extending anterodorsally beyond insertions of z1.

Gnathosoma with six rows of deutosternal denticles. Tectum (Fig. 3) tripartite, with central element forked distally; lateral elements fused; tectal base spinose. Movable digit of chelicera (Fig. 4) with a stout bicuspid tooth and one small tooth apically; fixed digit with a large backwardly directed tooth and a small tooth at apex; dorsal cheliceral seta simple; cheliceral brush less than half the length of movable digit.

Approximate lengths of legs (excluding pretarsi): I-405; II-315; III-285; IV-420; Tarsus I (90) longer than tibia I (75). Tarsus II (90) as in Fig. 5; tibia II (60). Genu IV with six simple setae.

MALE: Unknown.

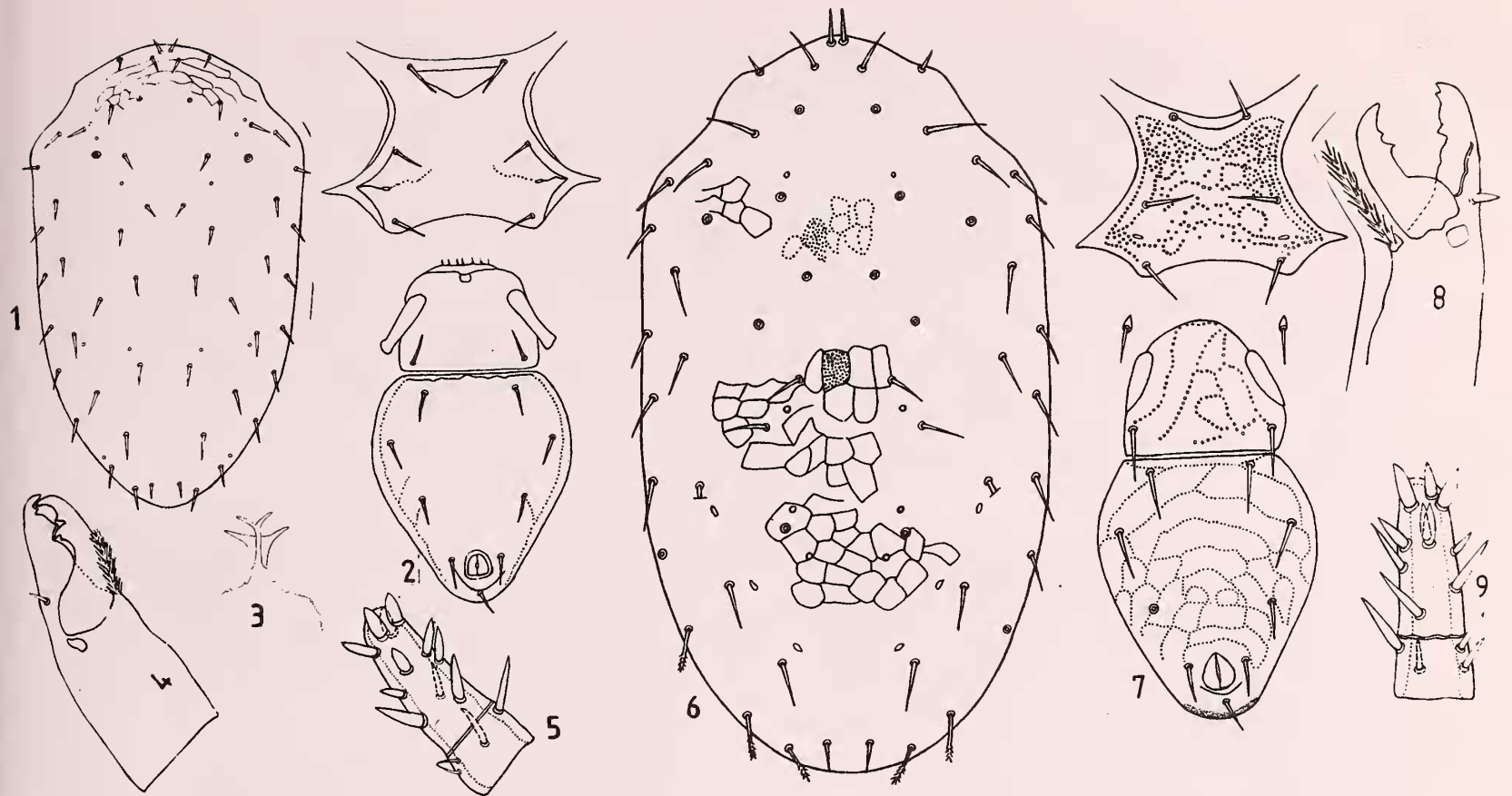
Material examined: *Holotype* FEMALE, INDIA: Assam: Dibrugarh, Dibrugarh University Campus, Rajabhetta, 10. vii. 1976, ex *Scarabaeus* sp., R.K. Roy coll.; *Paratype*: 1 female, data same as for holotype.

Distribution: INDIA: Assam.

Remarks: This new species shows resemblance to *M. neovernalis*, a beetle-associated species, described from the western Trans-

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Figs. 1-5: *Macrocheles assamensis* sp. nov. Female: Fig. 1. Dorsal shield; Fig. 2. Venter; Fig. 3. Tectum; Fig. 4. Chelicera; Fig. 5. Tarsus II.

Figs. 6-9: *Macrocheles punctosternalis* sp. nov. Female: Fig. 6. Dorsal shield; Fig. 7. Venter; Fig. 8. Chelicera; Fig. 9. Tarsus II.

vaal by Ryke and Meyer (1958). But *neovernalis* possesses the following differentiating characteristics: verticals, (j1), plumose distally, J5 slightly pectinate; sternal shield with distinct *l.m.t.*; larger in size (650 in length, 363 in width).

***Macrocheles punctosternalis* sp. nov.**

FEMALE (Figs. 6-9): Dorsal shield (Fig. 6), 606 long, 349 wide, punctate-reticulate and provided with 28 pairs of setae. Setae S4, S5, and Z5 plumose distally, r2 slightly pectinate distally, remainder simple and sharply pointed. Extra marginal setae simple.

Sternal shield (Fig. 7) granular with punctate ornamentation. Except *l.m.t.*, *l. arc.* and *l.o.a.* other *liniae* not discernible, sternal setae simple. Metasternal shields small and each with a simple seta. Genital shield granular and with punctate ornamentation. Ventrianal shield (Fig. 7), 197 long,

182 wide, granular and with transverse punctate lines. Metapodal shields elongate and poorly sclerotized. Peritremes looped laterally adjacent to stigmata and continuing anterodorsally beyond setae z1.

Gnathosoma with five rows of deutosternal denticles. Tectum not examined. Chelicera (Fig. 8) with both fixed and movable digit bidentate; cheliceral brush more than half the length of movable digit.

Approximate lengths of legs (excluding pretarsi): I-450; II-345; III-270; IV-420. Tarsus I (90) longer than tibia I (70). Tarsus II (90) as in Fig. 9; tibia II (60). Genu IV with six simple setae.

MALE: Unknown.

Material examined: *Holotype:* FEMALE, INDIA: Assam: Nowgong District, Lumding, 28. xii. 1973, ex nest material of *Passer domesticus* (L.), R.K. Roy coll.

Distribution: INDIA: Assam.

Remarks: This species resembles *Macro-*

cheles bacchusi Evans and Hyatt only in the punctate ornamentation of the sternal shield, but differs in possessing distinct *I.o.a.* Other differences are in the shape of genital, ventrianal shield, dorsal chaetotaxy and cheliceral dentition.

Macrocheles sikkimensis sp. nov.

FEMALE (Figs. 10-14): Dorsal shield (Fig. 10), 480 long, 255 wide, granular, weakly reticulate and bearing 28 pairs of simple setae. Insertions of verticals, (j1), contiguous.

Sternal shield (Fig. 11) elongate and with punctate ornamentation. *I.m.t.* undulating, *I. arc.* and *I. ang.* well-defined; sternal setae moderately long and simple. Metasternal setae simple, subequal to sternals III, each inserted on a small shield. Genital shield ornamented with punctate lines, genital setae simple. Ventrianal shield (Fig. 11) 150 long, 135 wide, rounded, somewhat truncated anteriorly and with three pairs of simple preanal setae, adanals also simple, postanal lost. Metapodals represented by a pair of small weak sclerites. Stigmata and peritremes as usual for genus; each

peritreme continues anterodorsally nearly to insertion of z1.

Ventral groove of gnathosoma with five rows of deutosternal denticles, first groove without teeth. Tectum (Fig. 12) tripartite, central element distally divided; lateral elements fused, tectal base spinose. Movable digit of chelicera (fig. 13) with a large median bicuspid tooth and a smaller subterminal tooth; fixed digit with a subterminal tooth and with a broad median cusp; cheliceral brush short, less than half the length of digit.

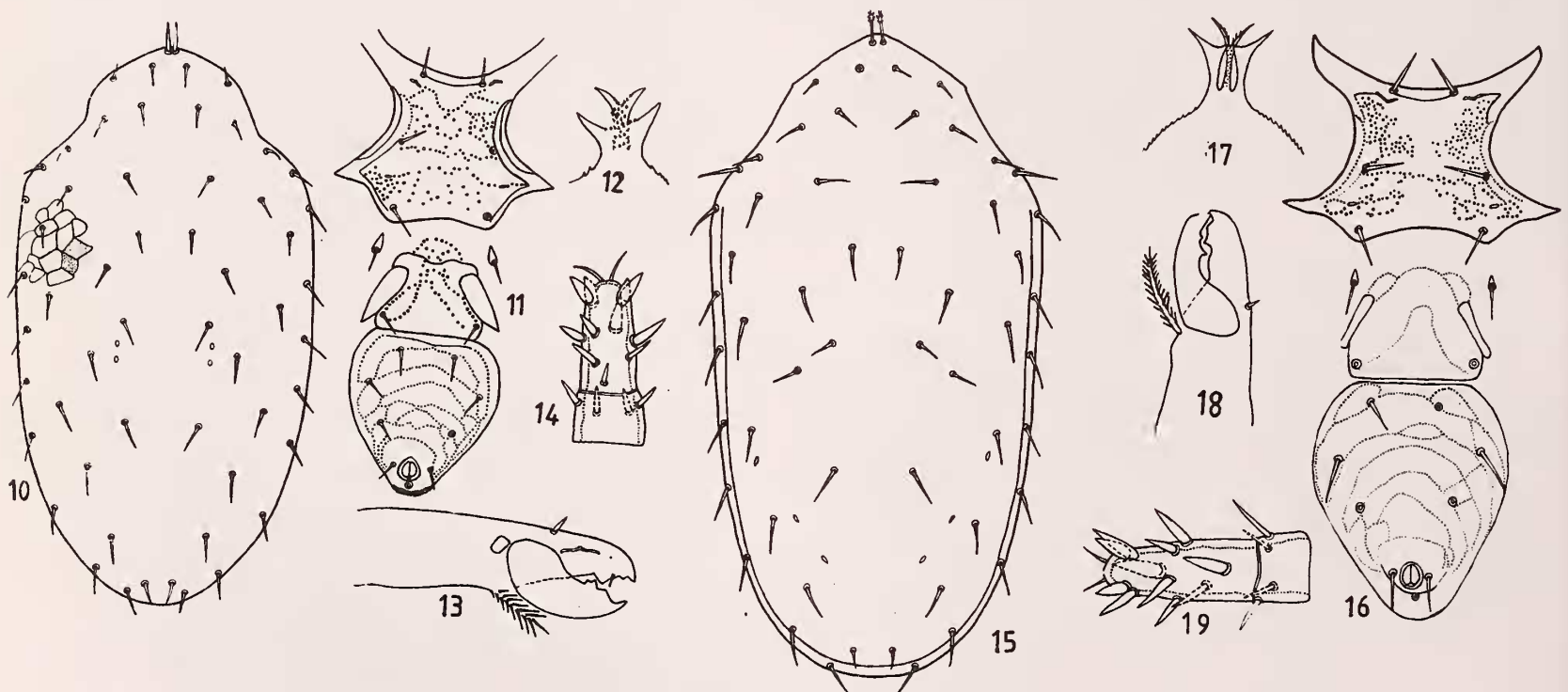
Approximate lengths of the legs (excluding pretarsi): I-375; II-300; III-240; IV-315. Tarsus I (75) longer than tibia I (60). Tarsus II (Fig. 14) 75, tibia II 60. Genu IV with six simple setae.

MALE: Unknown.

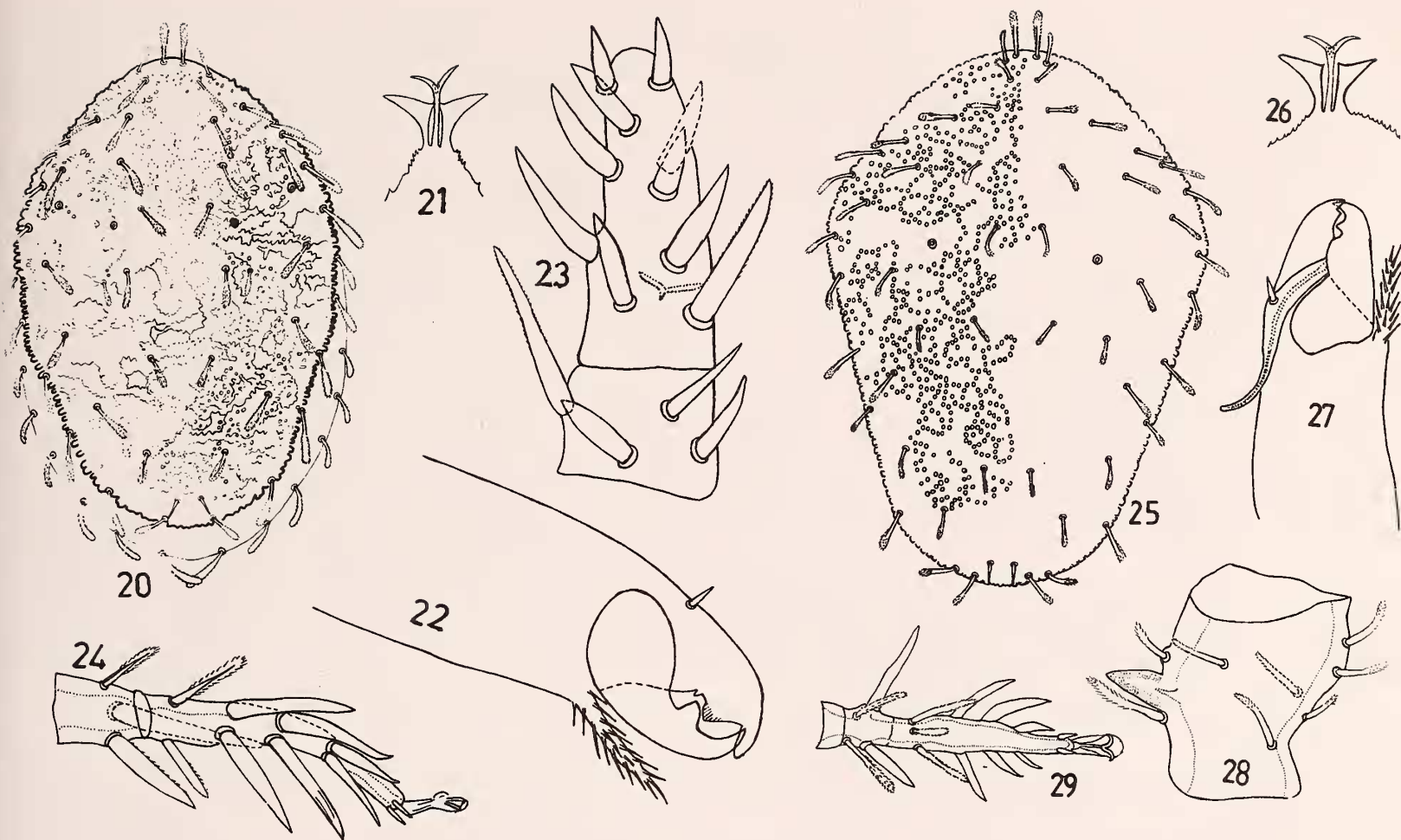
Material examined: *Holotype:* FEMALE, INDIA: Sikkim: Gangtok, 10.xi. 1977, ex *Scarabaeus erichsoni* (Har.), R.K. Roy coll.

Distribution: INDIA: Assam and Sikkim.

Remarks: Bhattacharyya (1971) misidentified this species as *Macrocheles merdarius* (Berlese,



Figs. 10-14: *Macrocheles sikkimensis* sp. nov. Female: Fig. 10. Dorsal shield; Fig. 11. Venter; Fig. 12. Tectum; Fig. 13. Chelicera; Fig. 14. Tarsus II.
Figs. 15-19: *Macrocheles bengalensis* sp. nov. Female: Fig. 15. Dorsal shield; Fig. 16. Venter; Fig. 17. Tectum; Fig. 18. Chelicera; Fig. 19. Tarsus II.



Figs. 20-24: *Macrocheles crenulatus* sp. nov. Female: Fig. 20. Dorsal shield; Fig. 21. Tectum; Fig. 22. Chelicera; Fig. 23. Tarsus II; Fig. 24. Tarsus IV.

Figs. 25-29: *Macrocheles crenulatus* sp. nov. Male: Fig. 25. Dorsal shield; Fig. 26. Tectum; Fig. 27. Chelicera; Fig. 28. Femur II; Fig. 29. Tarsus IV.

1889) and redescribed it. I collected it from soil under grass, at Moera Tetli, Tezpur, Assam. The present material has been collected from Sikkim.

Macrocheles bengalensis sp. nov.

FEMALE (Figs. 15-19): Dorsal shield (Fig. 15) 636 long, 303 wide, faintly reticulate and bearing 28 pairs of setae. Verticals, (j1), plumose distally, remainder simple.

Sternal shield (Fig. 16) as broad as long, ornamented with punctures; *l.m.t.* well-defined, *l.o.p.* punctate and extending medially. Metasternal shields triangular and each with a simple seta. Genital shield truncate posteriorly and ornamented with punctate lines. Ventrianal shield (Fig. 16) 182 long, 182 wide, as long as broad and ornamented with seven punctate transverse lines, ventrianal setae

simple. Ventral integument striate and with simple setae. Metapodal shields elongate and weakly sclerotized. Peritrematal shield fused with dorsal shield for most of its length, peritremes extending anterodorsally to setae z1.

Gnathosoma with five rows of deutosternal denticles; external posterior rostrals one third the length of internal posterior rostrals. Tectum as in Fig. 17. Movable as well as fixed digit of chelicera (Fig. 18) bidentate, dorsal seta thickened; cheliceral brush more than half the length of movable digit.

Approximate lengths of legs (excluding pretarsi): I-424; II-348; III-258; IV-455. Tarsus I (106) slightly longer than tibia I (75). Tarsus II (Fig. 19) 90; tibia II 60. Genu IV with six simple setae.

MALE: Unknown.

Material examined: *Holotype:* FEMALE, INDIA: West Bengal: 24 Parganas (South), Narendrapur, 24. xii. 1979, ex poultry bed litter, B.N. Putatunda coll.

Distribution: INDIA: West Bengal.

Remarks: This species differs from all other species by the distinctive features of the sternal shield.

Macrocheles crenulatus sp. nov.

FEMALE (Figs. 20-24): Dorsal shield (Fig. 20) ornamented with scutellae, 788-848 long, 455-500 wide, heavily sclerotized and bearing 28 pairs of setae of varying length. Margin crenulate, attenuated posteriorly. Verticals, (j1), plumose, their insertions separated widely, setae J5 simple, pointed and remainder plumose.

Sternal shield as long as broad, strongly ornamented; sternal setae plumose. Metasternal shields ovoid and each with a plumose seta. Ventrianal shield 181-242 long, 181-288 wide, oval and reticulate; ventrianal setae plumose including adanals and postanal. Metapodals elongate lateral to preanals II.

Gnathosoma with six rows of deutosternal denticles. Tectum as shown in Fig. 21. Movable digit of chelicera (Fig. 22) unidentate; fixed digit bidentate; cheliceral brush more than half the length of movable digit.

Approximate lengths of legs (excluding pretarsi): I-530; II-485; III-500; IV-727. Tarsus I (121) longer than tibia I (90). Tarsus II (Fig. 23) 90 with stout setae, tibia II 60. Tarsus IV long and with dagger like setae as illustrated in Fig. 24. Genu IV with six plumose setae.

MALE (Figs. 25-29): Dorsal shield (Fig. 25) 424-428 long, 151-154 wide, ornamentation and chaetotaxy as in female.

Genital orifice presternal in position. Holoventral shield 424-426 long, 151-152 wide, ornamentation similar to dorsal shield, and bearing 19 plumose setae. Tectum as shown in Fig. 26. Fixed digit of chelicera (Fig. 27) unidentate; movable digit also unidentate; spermatophoral process long, cheliceral brush more than half the length of movable digit.

Legs sclerotized as in female. Femur II (Fig. 28) with a thumb-like spur; leg IV without any spur or protuberance; tarsus IV with thickened long setae as in Fig. 29.

Material examined: *Holotype*: FEMALE, INDIA: West Bengal: Darjeeling, Botanical Garden, 14. xi. 1973, ex leaf litter; *Allotype*: MALE, Assam: Karbi Anglong District, Diphu, along Diphu Lumding Road, 25. xii. 1973, ex forest leaf litter; *Paratypes*: 2 females, Assam: Nowgong District, Lumding, Jholanphul, 30. xii. 1973, ex decaying grass heap; 2 females, Assam: Majuli (Brahmaputra River Island), 16. vi. 1976, ex decaying wood log, J. Sharma coll.; 2 females, Assam: Dibrugarh District, Ledu, 14. vi. 1976, leaf litter mixed with dung, J. Sharma coll.; 1 male, Assam: Majuli, 16. vi. 1976, ex leaf litter, J. Sharma coll.

Distribution: INDIA: Assam, West Bengal.

Remarks: *M. crenulatus* approaches *M. kolpakovae* Bregetova and Koroleva in the ornamentation of ventral shields; shape of the ventrianal shield and in dorsal chaetotaxy, but the former can be separated from the latter in possessing plumose z2 (simple in *kolpakovae*); J5 simple (plumose in the latter); sternals II-III plumose (simple in *kolpakovae*). Moreover both the species differ in cheliceral dentition: fixed digit bidentate in *crenulatus*, quadridentate in *kolpakovae* (vide Fig. 59, page 103, Bregetova and Koroleva, 1960; movable digit unidentate in present species. bidentate in *kolpakovae*; cheliceral dorsal seta is dentate in *kolpakovae*, simple in *crenulatus*).

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